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## NOTES FROM THE BEBB HERBARIUM OF THE UNIVERSITY OF OKLAHOMA—II<sup>1</sup>

MILTON HOPKINS

THE ROBERT BEBB HERBARIUM.—Robert Bebb, senior member of the Bebb Floral Company of Muskogee, Oklahoma, died on February 21, 1942, after a prolonged illness. By the terms of his will the University of Oklahoma received his herbarium, comprising about 30,000 specimens, largely from Oklahoma but also from Illinois, Indiana, Texas, Minnesota, California and the Rocky Mountain region.

At its meeting on the 5th of May, 1942, the Board of Regents of the University unanimously voted to name the herbarium in honor of this distinguished amateur botanist and it has therefore become officially, the Bebb Herbarium of the University of Oklahoma. In the succeeding pages, references to this name indicate not merely the personal herbarium of Mr. Bebb, but rather the entire collections of the University, which now bear that name.

Robert Bebb was the youngest child of Michael S. and Katherine Hancock Bebb. He alone, of their children, was interested in pursuing the avocation which his father had so successfully followed. As a child he often accompanied his father on those numerous field trips which meant so much to them both. In his early manhood he was able to make trips on his own because

<sup>1</sup> I am deeply indebted to the Committee on Research Grants of the Society of the Sigma Xi for awarding me a grant-in-aid from its Alumni Fund. This made possible my work for this paper (and others), which was done at the Gray Herbarium of Harvard University. I wish also to thank Professor M. L. Fernald, Director of the Gray Herbarium, and the other members of the staff, who placed the entire facilities of the institution at my disposal, and gave me every possible courtesy and consideration.

his work as a Grain Receiving Agent for the Rock Island Railroad made it possible for him to have the afternoons free for collecting. At this time he also became intensely interested in landscape architecture and horticulture.

When he moved to Muskogee in 1910 and purchased the floral business which bears his name, he was so busy with the work of building the firm to the high standards of quality which it now enjoys, that he found only brief time for the pursuit of his hobby. During the vacations, which he never permitted to extend more than the usual two weeks, he botanized wherever the family went for the summer, sometimes in Colorado, sometimes in California and often in Minnesota. If there were free evenings he identified his specimens as best he could. If not, they were taken back to Muskogee and such time as was available was devoted to them. Because of pressure of the business, many of these early collections remained unidentified for years.

When he retired from business in 1936 he was able to devote practically all of his time to botany. This hobby occupied the daylight hours of spring, summer and fall, when he enjoyed long field trips. The winter days were spent in his library working on his identifications. He restricted his botanical activities to eastern Oklahoma, all areas of which were within easy driving distance from Muskogee. The country in which he worked has only been superficially botanized, except for the work of E. L. Little, Jr.,<sup>1</sup> whose publications on Muskogee County were familiar to Bebb. Latterly, the Bebb family purchased a summer cottage in Hubbard County, Minnesota, and there Mr. Bebb collected almost daily during July and August.

He was always insistent on having authentic determinations made for all his specimens, and when he could not satisfactorily identify a plant or when I was not able to help him on some of the more critical genera he would ask me to whom he might send his material for further checking and study. He enjoyed his correspondence with these various authorities and also with the curators of the large herbaria. When in the fall of 1941 he realized that he would probably not live through the winter, he set to work assiduously on his plants and made it a point to

<sup>1</sup> The Vegetation of Muskogee County, Oklahoma, in *Am. Mid. Nat.* **19**: 559-572. 1938. Flora of Muskogee County, Oklahoma, in *Am. Mid. Nat.* **19**: 369-389. 1938.

clear up the various problems which had been bothering him. He repeatedly informed me that he did not want to leave his herbarium in such a condition that it would require precious hours of my time rechecking and further identifying his material. At the time of his death nearly all of his recent collections were ready for insertion and the duplicates were arranged in precise and orderly fashion, requiring only the labels before being sent out in exchange. These duplicates are now in my storeroom and will be duly distributed whenever clerical help is available. Several thousand of these await the attention of a typist.

Mr. Bebb had the zeal and enthusiasm of a great botanist. Had he been able to pursue his hobby continuously during his earlier life his fame would undoubtedly have eclipsed that of his father. In the field he was constantly in search of rare and unusual plants and was always conscious of the most minute variations. If a plant looked slightly unfamiliar or if it did not quite ring true in his mind, he always collected large numbers of duplicates so that other botanists might share his discovery.

With characteristic modesty he underestimated his ability, and in the last few months of his life he repeatedly said that he hoped his efforts had been of some consequence but he felt that they were merely routine. I am quite certain that he was completely unaware of the new records for the Oklahoma flora which he had obtained, except as his various professional acquaintances informed him of them during his lifetime. Many of them were found only gradually as his personal herbarium was being inserted into that of the University. Some of these are included in the present paper, but as the work of insertion is still far from complete, many records are necessarily omitted.

With his herbarium, his widow, sons and daughter (Florence P. Bebb, Maurice R., Forrest and Mabel B. Potter) graciously insisted that the handmade solid walnut cases belonging to M. S. Bebb be included. These were made from an old tree which stood for many years on the farm at Rockford, Illinois.

EPIPACTIS GIGANTEA Dougl. MURRAY COUNTY: seepy, springy slopes of limestone in Dripping Springs, Cowpen Canyon in the Frank's Conglomerate formation, Arbuckle Mts., *Hopkins*, no. 5995.

This exquisite orchid, standing about two feet high, grows

abundantly in banks of Venus-hair fern which forms great mats around it. Water from clear limestone springs above the banks trickles down gently over its roots. This seems to be the only locality where the plant has been found in Oklahoma. The station nearest the Arbuckles one is in the vicinity of Dallas, Texas (100 miles to the south), but the orchid occurs in several southwestern counties of that state. Westward, south and north it has been collected in Mexico, and through New Mexico and Arizona to California, then locally throughout the Rockies to British Columbia. Of distinct Cordilleran affinities, its occurrence in Dallas and in the Arbuckles is of special interest.

LOEFLINGIA TEXANA Hooker. HARPER COUNTY: sand dunes on north side of Cimarron River, *Frank McMurry* (ex. herb. *Wichita Mt. Wildlife Survey, Cache, Oklahoma*).

This caryophyllaceous plant is listed from both the Edwards Plateau and the Plains Country regions in Texas by Cory.<sup>1</sup> Its inclusion in the Oklahoma flora is not surprising, as Harper County is usually included in the Plains region. That it has never before been collected within the state is probably due to the fact that the northwest counties have never been botanized extensively, and the collections of the late G. W. Stevens of Alva, while numerous, were for the most part extremely local and rather spasmodic. The large number of specimens which he took to the Gray Herbarium for his doctoral thesis (approximately 6,000) were obtained chiefly on field trips during the summers of 1912, 1913 and 1914. His itinerary was supposed to cover nearly all of Oklahoma. Obviously, his material from any one region could hardly be expected to be a complete representation of the plants occurring there.

This specimen closely resembles an *Arenaria*, and might easily be confused with that genus. Robinson gives its distribution from "Central and Eastern Texas . . . northward to Nebraska"<sup>2</sup>, but there are no specimens in the Gray Herbarium from Oklahoma or the Indian Territory.

ARABIDOPSIS THALIANA (L.) Heynh. McCURTAIN COUNTY: deep, rich, wet woods of sweet gum and red maple near Mt. Fork River, 5 miles north of Broken Bow, *Hopkins*, no. 6260.

No mention of the occurrence of this cruciferous plant in

<sup>1</sup> Catalogue of the Flora of Texas, Tex. Agri. Exp. Sta. Bull. no. 550: 44. 1937.

<sup>2</sup> In Gray, Synop. Flora i, pt. i, fasc. ii: 255. 1897.

Oklahoma has been made in the literature, and search through the large herbaria has failed to discover any specimens. It represents a new record for our flora and extends the range southwest. Broken Bow is immediately south of the Ouachita Mountains, in extreme southeastern Oklahoma.

ARABIS VIRIDIS AN INVALID NAME.—When I published my treatment of this genus in eastern and central North America<sup>1</sup>, I completely overlooked *A. missouriensis* Greene.<sup>2</sup> Mr. C. V. Morton very kindly called this to my attention several years ago but I waited to correct the mistake until I had ample time to study the two species. Through the kindness of Dr. Theodore Just of Notre Dame University, I was able to obtain a photograph of the Greene TYPE (*B. F. Bush*, no. 31, Montier, Missouri) on which he based his description of the species. I also sent adequate specimens of *A. viridis* to Dr. Just who very graciously agreed to compare them with the type. This comparison was done by Mr. Merton J. Reed, one of Dr. Just's graduate students, and the results of his work clearly indicate that *A. viridis* and *A. missouriensis* are one and the same species. The latter name must, therefore, be taken up and the former reduced to synonymy.

Dr. Reed C. Rollins, visiting the Greene Herbarium in 1937, also recognized the identity of *A. viridis* and *A. missouriensis*. Likewise, he has annotated the specimens in the Gray Herbarium but has tactfully not publicly corrected my error, preferring to give me an opportunity to do so myself.

I am exceedingly grateful to Mr. Morton for his kindness in bringing to my attention this error and to Dr. Just for helping me to rectify it.

*A. viridis* var. *Deamii* thus becomes *A. missouriensis* var. **Deamii** (Hopkins), comb. nov.

LATHYRUS VENOSUS Muhl. var. MERIDIONALIS Butters & St. John. McCURTAIN COUNTY: clay soil, 8 miles northeast of Broken Bow, *D. B. Lemon* (*ex. herb. Okla. A. & M. Coll.*).

Butters and St. John<sup>3</sup> list this variety as a southern one, citing specimens from North Carolina, Georgia, Louisiana and Texas, and from seeds collected in Tennessee and grown in the Harvard

<sup>1</sup> RHODORA 39: 155–160. 1937.

<sup>2</sup> Fedde, Rep. Nov. Sp. 5: 244. 1908.

<sup>3</sup> RHODORA 19: 158. 1917.

University Botanical Garden. The Gray Herbarium has a specimen from Arkansas, but no citation from Oklahoma occurs in the manuals or floras nor do any of the checklists or works on the flora of Oklahoma mention it. The specimen in the Bebb Herbarium is one obtained in exchange with the Oklahoma A. & M. College, and was identified as *L. venosus*. Perusal of Butters and St. John's paper on the genus and comparative study with specimens in the Gray Herbarium indicate that the typical form of the species does not extend so far south. Our Oklahoma material should all be referred to the variety and inclusion of it in the native flora extends the range into a new state.

ERODIUM CICUTARIUM L'Hér. PITTSBURG COUNTY: waste places near McAlester, *Auval H. Brown*, no. 8.

An introduced weed, this plant has never been recorded from the state previously. Undoubtedly further collections will reveal it to be of rather common occurrence.

CNIDOSCOLUS TEXANUS AND *C. STIMULOSUS*; THEIR STATUS IN THE OKLAHOMA FLORA.—For several years I have been troubled by the identification of these two species and several of my colleagues asked me if it would be possible to study them and ascertain just what the ranges of each were, and whether one or both (or neither, there being an undescribed species of Mexican affinity in southwestern Oklahoma) occurred here. Accordingly, I took all the material in the Bebb Herbarium to Cambridge for study. The results of my investigation indicate that, of these two species, only *C. texanus* occurs in Oklahoma and Texas. *C. stimulosus* is strictly a coastal plain species,<sup>1</sup> occurring from Virginia south to Florida and on the gulf coastal plain to Mississippi and Louisiana. It is not represented in the Gray Herbarium from any Texas locality. *C. texanus* is the plant of the interior (Texas, Arkansas and Oklahoma), having larger flowers, a more heavily armed staminate calyx and more numerous spines on the stems and leaves. *C. stimulosus* has the flowers smaller, a nearly glabrous staminate calyx and fewer spines on the leaves and stems.

Small<sup>2</sup> correctly differentiated the two species but extended

<sup>1</sup> Fernald in RHODORA 44: 236-246. 1942.

<sup>2</sup> Flora, ed. 1: 706. 1903.

the range of *C. stimulosus* as far west as Texas. The range of *C. texanus* is properly given as "Arkansas and the Indian Territory to Texas". Cory<sup>1</sup> lists both species in Texas, giving the locality for *C. stimulosus* as the Rio Grande Plains (his Area no. 3, comprising all the counties in extreme southern Texas in the Rio Grande Valley).<sup>2</sup>

Stemen & Myers<sup>3</sup> list both species from Oklahoma. Their work is largely a compilation from Small's Flora as it pertains to this state, and where Small erred these authors likewise err.

G. W. Stevens' unpublished manuscript Flora of Oklahoma (original in the Widener Library of Harvard University; duplicate copy in the Library of the University of Oklahoma) also lists both species from our state but he, like Stemen & Myers, also followed Small to a large extent. Many of Stevens' records have been shown to be inaccurate and his determinations are likewise often insecure. Until a more thorough and complete knowledge of our native flora is obtained it would be unscientific to try to publish the Stevens manuscript.

CALLIRHOE INVOLUCRATA (T. & G.) Gray, forma **incisa**, n. f. Petalis apice incisis. CLEVELAND COUNTY: woodland copse near South Canadian River, Indian Springs, 4 miles south of Norman, Hopkins, no. 1296 (TYPE in Bebb Herb. Univ. of Okla.).

This unusual plant has the petals sharply incised to a depth of about 5 mm. instead of having them truncate at the apex as in the typical form of the species. I have seen no other plants like

<sup>1</sup> Catalogue Fl. Tex., 64. 1937.

<sup>2</sup> When I wrote Mr. Cory regarding the distribution of this plant several years ago and asked him for his personal field experiences with it, his reply was, in part, as follows:

"It has been my experience that practically all this material [from Texas] is of the species *texana*. [referring to the generic name *Jatropha*]. As I recall it, my only collection of the true *stimulosa* is from Maverick County, below Eagle Pass. Two or three years ago I collected a similar species, but apparently a different one, in the mountains near Sabinas Hidalgo, Nuevo Leon, Mexico. I did not get to preserve this specimen. Judging from the distribution of the two species, it would seem highly probable that the plant from along the Rio Grande would not be *stimulosa*. If it really is some distinct Mexican species, then we do not have any *stimulosa* in Texas. I should be inclined to suspect that you have only *texana* in Oklahoma. We have to rely upon the key in Small's Manual of the 1903 edition for the separation of these two species. All that I can say now is that we should have two species in Texas, one of which is most certainly *texana*, and the other probably a Mexican species." (letter dated 22 June 1940).

Although he listed *C. stimulosus* from Texas in his Catalogue in 1937, he apparently realized in 1940 that typical *C. stimulosus* is absent from the Texas flora, and therefore, should be written out of the Catalogue (page 64).

<sup>3</sup> Oklahoma Flora, 286. 1937.

it, outside of Indian Springs, where it appears to grow abundantly. Many plants have been found there.

*VIOLA STRIATA* Ait. MUSKOGEE COUNTY: deep, rich woods in dry soil, *Robt. Bebb*, no. 5251.

Among the most interesting of the new records based upon discoveries by the late Mr. Bebb, this little violet gave him the greatest pleasure. Its southwestern limit is thus extended into Oklahoma. He was always extremely modest and when I informed him of this new record for the state he insisted that the greatest possible care be exercised in checking its identity. He was invariably pleased at any of his "finds" but firm in his insistence that no credit be given him.

*LYTHRUM LINEARE* L. PITTSBURG COUNTY: swampy valley in deep woods, *J. E. McClary*, no. 49.

In studying the various species of this genus at the Gray Herbarium I was surprised to find a plant from Oklahoma with all the leaves opposite. Further, the opposite leaves on this specimen are narrowly linear and the longest is only 2.5 cm. The plant is obviously *L. lineare* but it is considerably more inland than its range would indicate. Pittsburg County, in southeastern Oklahoma, has a few representatives of the Coastal Plain flora (*Pinus echinata* being noteworthy), but ordinarily one does not expect to find plants characteristic of that region in the county. The western limit of *P. echinata* is just outside of McAlester (about 5 miles to the east on U. S. Highway 270), and it is likely that McClary, a former student at the University of Oklahoma, botanized in the outlying areas of the town extensively. His home was there.

The plant in question matches typical and authentically determined specimens, and it fits the descriptions in the manuals and floras. This station is far inland from the normal range of the plant and constitutes a new state record. Cory<sup>1</sup> gives its range in Texas as "Coastal Prairies" (his Area no. 2). This region constitutes only those counties along the Gulf of Mexico from the Louisiana state line to the vicinity of Corpus Christi. To reach the Oklahoma locality the migration of the species would have to have been via the Mississippi, Red and Boggy Rivers. Numerous creeks running south from Pittsburg County drain into the latter.

<sup>1</sup> Catalogue, 75.



*ZIZIA APTERA* (Gray) Fern. ADAIR COUNTY: hills in open woods, *Robt. Bebb*, no. 5210.

This collection, by the indefatigable Mr. Bebb, represents another extension of range southwestward. It is new to Oklahoma, the nearest station being in Missouri. I did not learn of this until after Mr. Bebb's herbarium had been brought to Norman and I began inserting his plants with those in the local herbarium. He identified the specimen as *Z. cordata*, but did not indicate that it constituted a new record. He thought that the herbarium at the University was much more complete than it was (or is now!) and did not realize that any of his contributions would be of major interest.

*FRAXINUS PENNSYLVANICA* VAR. *AUSTINI* IN OKLAHOMA.—Professor Fernald, discussing the varieties of this species<sup>1</sup> gives the range of this one from "Quebec to Manitoba, south to Nova Scotia, New England, northern New Jersey to upland of Virginia, New York, Ohio, Illinois and Iowa." In endeavoring to "order up" this genus in the Bebb Herbarium I found that several of our specimens<sup>2</sup> exactly fitted his description of this variety and that they would key out to none other. Consequently, I took them all to the Gray Herbarium for comparative study. They are doubtless this variety and I am therefore making what Professor Fernald indicates for all the American ashes, a "hopelessly tentative" determination. These specimens extend the range of the plant southward to the Wichita Mountains of southwestern Oklahoma. Inasmuch as these mountains harbor such eastern plants as *Arabis missouriensis* (in the greatest abundance, so that one almost thinks of it as a weed), *Acer saccharum* (in that region treated by most Oklahoma botanists as *A. grandidentatum*, but clearly not that, although further study

<sup>1</sup> *RHODORA* 40: 452-453. 1938.

<sup>2</sup> *Waterfall*, no. 2935, along creek in open woods, Medicine Park, Wichita Mts., Comanche County; *Waterfall*, no. 2944, along ravine west of Medicine Park, Wichita Mts., Comanche County; *Mrs. J. Clemens*, no. 11,725a, Fort Sill, Comanche County. Mrs. Clemens was the wife of an Army Chaplain stationed there. She collected two specimens of this identical number but with different dates. The one in the Bebb Herbarium is dated June 22, 1916 (*a*), and the one in the Gray Herbarium bears the date 25 May 1916 (*b*). The latter specimen has the long samaras (over 4 cm.) of var. *typica*; the former has the shorter samaras of var. *Austini*. Collected about a month apart the two specimens were doubtless obtained at different localities on the post. Fort Sill was then, and is now, the largest Field Artillery School in the country and affords, within its own gates, many varied and unique collecting spots. Also, it is well within "gunshot" of the Wichita Mountains, being only a few miles away.

may reveal it to be merely an isolated variety of the typical New England sugar maple)<sup>1</sup>, *Phryma Leptostachya* (the typical form) and *Arisaema Dracontium* (though perhaps not quite as "eastern" as the others, still not quite so "western" as the Wichitas), it is not unusual that one should also find this ash.

FRAXINUS TEXENSIS (A. Gray) Sargent. MURRAY COUNTY: open, xeric, calcareous outcrop in the center of Scott's Dome and adjacent to an old asphalt mine, Viola Limestone Formation, Arbuckle Mountains, *Hopkins*, no. 5305.

Locally abundant in the various limestone formations of the Arbuckles where it grows at the bottom of gullies and ravines, this plant appears to be unrecorded from the state. Closely related to *F. americana*, it is immediately differentiated by its smaller, more ovate leaflets which are usually fewer in number than in the former species, and by its shorter, smaller samaras. Asa Gray interpreted it merely as a variety of the white ash, but it is a tree of considerably lower stature and has numerous other characteristics which are adequate for maintaining it as a distinct species.

Although it is common in and nearly restricted to, the Arbuckles, there is one specimen in the Bebb Herbarium from Cherokee County, in northeastern Oklahoma (*Mr. and Mrs. E. L. Little, Sr.*, near Talequah, no. 149). Talequah is in a limestone area and it is quite likely that the specimen was found on

<sup>1</sup> Inasmuch as none of the authors prior to 1912 include *A. grandidentatum* in the flora of this state, it seems quite probable that the Wichita Mt. specimens were first identified (erroneously?) by G. W. Stevens (about 1915-16) as that plant, and that succeeding authors merely accepted his determination without further questioning. Sargent (*Man.*, ed. 2: 693. 1922) cites Stevens as the authority for this record. Mattoon (*Forest Trees of Okla.*, ed. 1: 61. 1927) refers the plant to *A. saccharum* var. *grandidentatum* with the notation: "found in the Wichita Mountains of southwestern Oklahoma, but is rare and local." Later editions of this booklet (five in all) give it specific rank and all of them attribute it to the Wichitas. Jeffs & Little (*Preliminary List of the Ferns and Seed Plants of Oklahoma*: 71. 1930) include it. Stemen & Myers (*Okla. Flora*: 304. 1937) do likewise. But VanDersal (*Handbook of Native Woody Plants of the U. S., U. S. D. A. SCS-TP-11*: 32. 1936) very definitely, and I believe correctly, omits it from the Wichitas. However, in the later, published edition (the first one was only mimeographed) he includes it (*Native Woody Plants of the U. S., U. S. D. A. M. P. no. 303*: 40. 1938). The problem needs detailed study and no conclusions must be drawn at the present time. The above notes are included here merely to introduce the question as to the presence of the plant in the Wichitas. My own (and admittedly very brief) field experience with this tree has been just enough to convince me that it is probably only an ecological (or genetic) variant of the eastern sugar maple. Its occurrence in the Wichitas could easily be explained by the same hypothesis which accounts for its presence in Caddo Canyon, some 60 miles due north. This hypothesis was proposed by me several years ago (see *RHODORA* 40: 431. 1938).

calcareous rocks. If this is so (there is no indication on the label, however), it adds an additional link to my argument that an ancient flora existed on the thin limestones which were formed by the recession of the Comanchian Sea, in the southern Mid-Continent area of the United States. This idea was elucidated in an earlier paper<sup>1</sup> and was based on evidence illustrated by the present distribution of *Juniperus mexicana*<sup>2</sup>, whose range is not unlike that of the Texas ash. The only northern Oklahoma station for the juniper (outside the Arbuckles where it too abounds) is in Mayes County which is not more than 25 miles north of the station for the ash. Both areas are in the Boone Limestone formation.

DICHONDRA REPENS Forst. var. CAROLINIENSIS (Michx.) Choisy. LEFLORE COUNTY: damp ground in rich woods, *Robt. Bebb*, no. 5403.

Again, Mr. Bebb told me nothing of this plant and I did not discover it until I began inserting his specimens. It is new to Oklahoma, being found elsewhere from Virginia to Florida, west to Texas, chiefly in the coastal regions. It was originally identified by the collector as *D. evolulacea*—with a question mark—but I have checked my own determination. No previous records of its occurrence in our state are extant.

HEDEOMA ACINOIDES Scheele. MURRAY COUNTY: hillsides, near Prices Falls, in the Viola Limestone formation, *Tenney*, no. 170.

This plant constitutes another state record for the Oklahoma flora. Previous records indicate its occurrence in the adjacent states of Missouri, Arkansas and Texas, but none of the literature from this state mentions it and I am unable to find any specimens in any herbarium.

BRAZORIA SCUTELLARIOIDES Engelm. & Gray. MURRAY COUNTY: open, rocky pastures in limestone of the Frank's Conglomerate formation in Cowpen Canyon on the Ellsworth Collings' Bar-C Ranch, Arbuckle Mountains, *Hopkins*, no. 6330.

This very attractive little annual with its lilac-pink flowers looks so much like a *Physostegia* that I at first mistook it for one. However, all the members of that genus are perennials and over

<sup>1</sup> RHODORA 40: 425-429. 1938.

<sup>2</sup> Which is not the correct name for the plant. The bibliography is essentially confused and *J. mexicana* is preoccupied. Until the correct name (or a new one) is found, the present epithet must suffice.

one foot high. This plant was scarcely 8 inches in height and had an annual root. Its identification adds another species to the state flora and also to that of the Arbuckle Mountains. As many times as I have botanized in those mountains in the spring, I have never happened to see this plant, much less to collect it. Yet on the day when I obtained it, the area was nearly carpeted with its pink flowers. It represents another extension northward from Texas where it occurs throughout the central and southern parts of that state. Only one specimen in the Gray Herbarium indicates the fact that it is a plant of calcareous soils, but in the Arbuckles it never grows anywhere except on limestone rocks.

*GALIUM PROLIFERUM* Gray. GREER COUNTY: damp soil, near Mangum, *Rotha Bull, sine numero*.

This specimen in the Bebb Herbarium was identified as *G. pilosum*. However, in checking the genus I was puzzled by the plant as well as several others resembling it superficially, and therefore took the entire lot to the Gray Herbarium for further study. This herbarium sheet is the only representative of the species in our Herbarium and, likewise, constitutes a new state record, not being previously found north of Texas where it occurs in the Trans-Pecos and Edwards Plateau areas (nos. 5 & 6 in Cory's Catalogue). Mangum is in extreme southwestern Oklahoma and possesses many plants of south Texas affinities in its rather diversified flora.

*GALIUM TEXENSE* IN OKLAHOMA.—In the Bebb Herbarium there are four specimens of this interesting species, variously identified as *G. proliferum*, *G. pilosum* and *G. virgatum*. While studying the material in the Gray Herbarium, it was obvious that they should all be referred to *G. texense* Gray, and therefore they constitute another new record for our flora, the plant having previously been unrecorded from north of Texas. Three of those specimens are from the Wichita Mountains in the southwestern part of the state<sup>1</sup>; the other is from Mangum in Greer County (*Bull, sine numero*). Miss Bull wrote her thesis for the M.S. degree on the "Flora of Greer County" (unpublished) and although she is represented in the Bebb Herbarium by innumerable specimens, it is very unfortunate that she did not number all of

<sup>1</sup> *Mrs. J. Clemens*, no. 11,792, Fort Sill, Comanche Co.; *Waterfall*, no. 2923, in field among granite boulders near top of Mt. Scott, Wichita Mts., Comanche Co.; *Rotha Bull*, no. 47, Wichita Mts., Comanche Co.

them and that her descriptions of habitat were so sketchy. Greer County is adjacent to the Texas panhandle and Miss Bull's work is the only representation from that area, except for the collections from one trip made hastily in 1914 by the late G. W. Stevens.

UNIVERSITY OF OKLAHOMA

Norman, Oklahoma

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A FLORA OF KENTUCKY.—It is a great pleasure to welcome to the growing array of state-floras one which assembles information on the distribution within the state of the flowering plants of Kentucky. Professor E. Lucy Braun<sup>1</sup> has given us her knowledge of local ranges and many critical comments. Divided between differing judgments of specific values, she has often avoided umpiring by following extended works on groups without noting dissenting evaluations. She thus accepts Hitchcock's Manual for the *Gramineae*; and all the members of *Panicum* for which she has found records appear, consequently, with no intimation that several close students have independently merged as one species, for example, *P. huachucae*, *Lindheimeri* and *tennesseense*, or, similarly, that in *Paspalum*, competent students have protested the keeping apart as species *P. circulare* and *P. laeve*. In these more technical groups the author has, obviously, not been in a position to decide. In groups more familiar to her she has made pertinent notes, like the failure of the leaves of the *Arisaema triphyllum* series to hold consistently to green or glaucous lower surfaces, or the ecological phases of *Aquilegia canadensis* failing to maintain their individuality when grown in similar habitats; and in a large number of cases, where no extended volume was leaned upon, recent critical studies of individual genera or species have been accepted. The citations in these cases greatly add to the reference-value of the *Catalog*. The great amount of collecting and of study of literature and the larger and older herbaria still to be done before the full content of the flora of the state is enumerated in one catalogue is evident from there being no mention of such weedy plants (found north, south, east and west of Kentucky) as *Camelina*, *Raphanus*, *Brassica* (except *nigra*) and *Erysimum cheiranthoides*, or of the weedy *Trifolium dubium*, which was sent to Asa Gray in 1855 by Short with the comment: "A volunteer in my garden and grass lots—never observed 'till this summer. Should be embraced among Kentucky plants." In *Trifolium*, furthermore, one misses any native species. They are doubtless local, but in the Gray Herbarium there are characteristic specimens from Kentucky of the native *T. reflexum* (three stations) and a fine specimen from Lexington, Short, of the native *T. stoloniferum*. In fact, both these natives were in Short's published *Catalogue* of 1833. In the first two-thirds of the *Archaeamydeae* one misses other noteworthy natives of Kentucky: *Stellaria fontinalis* (Short & Peter) Robinson, based on *Sagina fontinalis* Short & Peter from "cliffs of the Kentucky river and Elkhorn creek"; *Clematis glaucophylla*

<sup>1</sup>E. LUCY BRAUN. An Annotated Catalog of Spermatophytes of Kentucky. Copyright 1943 by E. Lucy Braun. Planographed. 161 pp.